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Evans et al.

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(54) **DUAL-MODALITY MAMMOGRAPHY**

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(57) **ABSTRACT**

A scanning assembly for a dual-modality automated biological tissue imaging device having first and second compression surfaces is provided. The assembly comprises a housing defining a scanning/compression surface, an ultrasonic transducer mounted within the housing adjacent the scanning surface for movement in a plane parallel to the scanning surface and imaging the tissue through the scanning surface, an X-ray detector mounted within the housing for forming an X-ray image of the tissue based on X-ray radiation passed through the tissue and scanning surface from an X-ray source, and a drive for moving the transducer across the scanning surface so that the transducer generates a plurality of two-dimensional ultrasound tissue images. The housing is hermetically sealed and filled with non-conductive fluid with acoustic impedance resembling that of the tissue. The scanning surface has acoustic impedance resembling that of the tissue and can substantially withstand compression forces applied to the tissue.

11 Claims, 8 Drawing Sheets